

RECOMMENDED EPOXY FORMULATIONS

C. Putnam
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FORMULATIONS	ANL-APS #1 See Note 4	ANL-APS #2 See Note 4	ANL-APS #
Base Resin Note 1	DER 332 100pbw	DER 332 75pbw	DER332 50pbw
Flexibilizer	None	DER 736 25pbw	DER 736 50pbw
Hardener Note 2	Nadic Methyl 90 pbw Anhydride (NMA)	Nadic Methyl 90pbw Anhydride	Nadic Methyl 90pbw Anhydride
Accelerator Note 3	DMP 30 or 1.5pbw BDMA 1pbw	DMP 30 or 1.5pbw DMA 1pbw	DMP 30 or 1.5 pbw BDMA 1 pbw
Recommended Cure Cycle Note 6	Mold preheat and fill temp. Gel for 4 hrs Post Cure 6 hrs Controlled cool down to		130 ± 5° F 190 ± 5° F 305 ± 5° F 130° F
Recommended Cure Cycle W/ annealing Step Note 7	Mold preheat and fill temp. Gel for 4 hrs Post cure 6 hrs Cool to Soak for 1 to 2 hrs Rise to Soak For 1 to 2 hrs Controlled cool down to		130 ± 5° F 190 ± 5° F 305 ± 5° F 180 ± 5° F 180 ± 5° F 305 ± 5° F 305 ± 5° F 130° F
Other	<p>The addition of any other ingredients such as saline coupling agents, antifoam agents, etc. to be reviewed and approved by Argonne National Lab.</p> <p>Any epoxy resins, curling agents, accelerators, etc. not on the approved list to be reviewed and approved by Argonne National Lab.</p> <p>Other proposed curling cycles shall be reviewed and approved by Argonne National Lab.</p>		

Notes

1. Acceptable substitutes in order of increasing viscosity
Epon 825, Araldite GY6004, EpiREZ 508, Epon 826, Araldite GY6005, EpiRez 509
2. Acceptable substitute
Ciba Geigy HY906
3. Acceptable substitutes
Ciba Geigy DY064 for DMP30
Ciba Geigy DY062 for BDMA
BDMA gives longer pot life but is more volatile than DMP 30 and concentration may be reduced by vacuum.
4. It is strongly urged to use stripping tape with these formulations. Also may have to use an annealing cure cycle to prevent cracks.
5. Suggested impregnation preheats. DER 332, DER 736, NMA - 130°F Coil and impregnation fixture – 130 - 140°F.
6. Cure times are for coil at recommended temperature.
7. May need to use this cycle on larger or longer coils.

DER – Dow Chemical Co.

EPON – Shell Chemical Co.

EpiRez – Rhone Poulenc Inc.

Araldite – Ciba-Geigy Corp.

NMA – Anhydrides and Chemicals, Inc., Buffalo Color, Ciba Geigy (HY906)

BDMA - Air Products, Ciba Geigy (DY062), Pacific Anchor

DMP – Rhom & Haas